CLAIMS

What is claimed is:

1. A composition comprising one or more replication conditional (RC) adenoviral vectors and one or more replication defective RD adenoviral viral vectors, which when said composition is administered to a mammalian animal or human, causes amplification of the RD vector.

2. The composition of claim 1, wherein said replication conditional adenoviral vector replicates only in tumor cells.

3. The composition of claims 1 or 2, wherein said replication defective adenoviral vector comprises one or more therapeutic genes.

4. The composition of claim 3, wherein said therapeutic gene is selected from a group consisting of a suicide gene, a cytokine, and a secreted hormone.

5. The composition of claims 1through 4, wherein said replication conditional adenovirus is replication competent only in the presence of a complementing function from a host cell.

6. The composition of claim 5, wherein said complementing functions are selected from an endogenous nucleotide sequence from the group consisting of a reporter region, *ras, myc, raf, erb, src, fms, jun, trk, ret, gsp, hst, bcl abl,* Rb, CFTR, p16, p21, p27, p53, p57, p73, C-CAM, APC, CTS-1, zac1, scFV *ras*, DCC, NF-1, NF-2, WT-1, MEN-I, MEN-II, BRCA1, VHL, MMAC1, FCC, MCC, BRCA2, IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11 IL-12, IL15, IL18, GM-CSF, G-CSF, TNF, gIFN, aIFN, bIFN,

thymidine kinase, cytosine deaminase, cyt-p450, CD40L, Factor VIII, Factor IX, CD40, multiple disease resistance (MDR), ornithine transcarbamylase (OTC), ICAM-1, HER2-neu, PSA, terminal transferase, caspase, NOS, VEGF, endostatin, vegostatin, FGF, FGF4, bFGF, HIS, heat shock proteins, IFN α and γ, TNF α and β, telomerase, and insulin receptor.

7. The composition of claims 3 through 6, wherein said therapeutic gene is a thymidine kinase gene.

8. A method of treating an animal or human by administering a therapeutically effective amount of a composition according to claims 1 through 7.

9. The method of claim 8, wherein RC and RD adenoviral vectors are simultaneously administered.

10. The method of claim 8, wherein RC and RD adenoviral vectors are separately administered.

11. The method of claims 8-10, wherein said treating is directed toward cancer.

12. The method of claim 11, wherein said RC and RD adenoviral vectors are administered directly to a tumor.

13. The method of claims 8 through 12, wherein said treatment with RC and RD vectors is in combination with other conventional treatments.

14. The method of claim 13, wherein said other conventional treatments are selected from the group consisting of surgery, radiation therapy, and chemotherapy.

15. The method of claims 8 through 14, wherein said RC and RD adenoviral vectors are administered as packaged adenoviral vector particles.

16. The method of claims 8 through 14, where one or both of the RC and RD adenoviral vectors is administered as a nucleic acid sequence.